CLAIMS

What is claimed is:

1. A method for enhancing a digital image comprising the steps of:

a) locating human faces within said digital image;

b) analyzing said digital image, said alanysis including analysis of said human faces located in step a) and including analysis of said digital image as a whole;

c) determining a tone mapping function for enhancing the image quality of said digital image, said tone mapping function determinined using both said analysis of said faces located in step a) and using said analysis of said image as a whole; and

d) applying said tone mapping function determined in step c) to said digital image so as to produce an enhanced digital image.

2. The method of Claim 1 wherein steps a) through d) are performed automatically and without any user input.

3. The method of Claim 1 wherein step a) further comprises:

a1). applying a face detection algorithm to said digital image for locating faces within said digital images.

4. The method as recited in Claim 1 wherein said tone mapping function includes both psychological factors and signal factors.

5. The method as recited in Claim 4 wherein said psychological factors include average face region lightness and average picture lightness.

6. The method as recited in Claim 4 wherein said signal factors include digital resolution and face region contrast.

7. The method as recited in Claim 6 wherein said signal factors include histogram uniformity and noise issue.

8. The method as recited in Claim 4 wherein step c) further includes generating a look-up table that corresponds to said tone mapping curve.

9. The method as recited in Claim 4 wherein step d) further comprises applying the tone properties within said lookup table to said digital image so as to alter the tone values of said digital image, thereby producing an enhanced digital image having altered tone values.

10. The method as described in Claim 1 further comprising the steps of:

d1) converting said digital image from an original format into a L*a*b* format prior to performing step a); and

d2) converting said digital image back into said original format after step d) has been performed.

11. In a computer system including a processor coupled to a bus, and a memory unit coupled to the bus for storing information, a computer-implemented method for enhancing a digital image comprising the steps of:

a) locating human faces within said digital image;

b) analyzing said digital image, said alanysis including analysis of said human faces located in step a) and including analysis of said digital image as a whole;

c) determining a tone mapping function for enhancing the image quality of said digital image, said tone mapping function determinined using both said analysis of said faces located in step a) and using said analysis of said image as a whole; and

d) applying said tone mapping function determined in step c) to said digital image so as to produce an enhanced digital image.

12. The method of Claim 11 wherein steps a) through d) are performed automatically and without any user input.

13. The method of Claim 12 wherein step a) further comprises:

a1). applying a face detection algorithm to said digital image for locating faces within said digital images.

14. The method as recited in Claim 13 wherein said tone mapping function includes both psychological factors and signal factors.

15. The method as recited in Claim 14 wherein said psychological factors include average face region lightness and average picture lightness.

16. The method as recited in Claim 14 wherein said signal factors include digital resolution and face region contrast.

17. The method as recited in Claim 16 wherein said signal factors include histogram uniformity and noise issue.

18. A computer-readable storage medium storing instructions that, when executed by a computer, cause the computer to perform a method for enhancing a digital image comprising the step of:

a) locating human faces within said digital image;

b) analyzing said digital image, said alanysis including analysis of said human faces located in step a) and including analysis of said digital image as a whole;

c) determining a tone mapping function for enhancing the image quality of said digital image, said tone mapping function determinined using both said analysis of said faces located in step a) and using said analysis of said image as a whole; and

d) applying said tone mapping function determined in step c) to said digital image so as to produce an enhanced digital image.

19. The computer-readable storage medium of Claim 18 wherein steps a) through d) are performed automatically and without any user input.

20. The method as recited in Claim 19 wherein said tone mapping function includes both psychological factors and signal factors.

21. The method as recited in Claim 20 wherein said psychological factors include average face region lightness and average picture lightness.

22. The method as recited in Claim 21 wherein said signal factors include digital resolution, face region contrast and histogram uniformity.

23. The method as recited in Claim 18 wherein step c) further includes generating a look-up table that corresponds to said tone mapping curve.

24. The method as recited in Claim 23 wherein step d) further comprises applying the tone properties within said lookup table to said digital image so as to alter the tone values of said digital image, thereby producing an enhanced digital image having altered tone values.